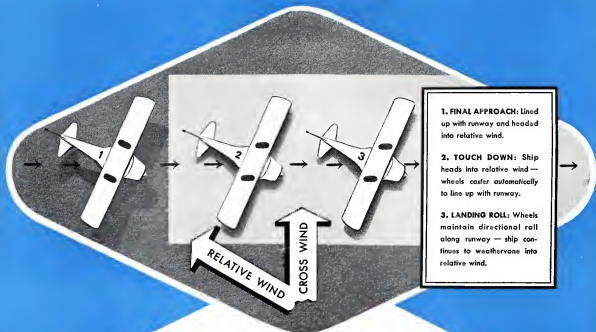


AVIATION WEEK

OCT. 18, 1948

A MCGRAW-HILL PUBLICATION



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Anson L. Johnson, Thompson Trophy Winner

1948 NATIONAL AIR RACES, CLEVELAND AIRPORT
SEPTEMBER 6

300 miles—20 laps of a 15-mile quadrangular course—
average speed of 383.767 miles per hour



THE PILOT: Anson L. Johnson of Miami Springs, Florida, former lieutenant in the U. S. Air Force. During War II, he served as ferry and transport pilot. He turned to fly at the age of nineteen. Now twenty-eight years old, he is a pilot for National Air Lines.

THE PLANE: The ship flown by Johnson was a converted P-51 Mustang fighter powered by a Packard Merlin engine. It is Johnson's own, refitted for the "Thompson" by himself—he had no sponsor.

THE EVENT: The Thompson Trophy Race, instituted in 1929, has become an institution. It is the recognized world-challenge for air speedsters around a closed course. To fly this tight, closed course in a graceful turn of both plane and pilot. It calls for skill, daring and judgment. Pilots must wear shoulder straps, crash helmets and parachutes.

THE PURPOSE: The National Air Races is a great proving ground for innovations in wing and motor. The "Thompson" because it demands constant bursts at a scorching rate of a plane's speed and utmost under conditions that require utmost maneuverability with wide-open throttle. Just how severe is witnessed by the fact that 7 out of 18 events in the 1948 event were flown out under a blustering 450 miles per

hour pace, the fastest single lap was 415.997 miles per hour. The "Thompson" is dedicated to the development of faster, safer planes—the combination that will hold our Country's commercial and military leadership in the air.

TROPHY AND AWARDS: The Thompson Trophy is a trophy of bronze, 40 inches high, designed by the noted sculptor, Walter A. Sola. This precious trophy is engraved with each winner's name and average speed, and held by him for one year. For permanent possession, pilots who finish first, second and third receive gold, silver and bronze plaques. The prize purse for 1948 was \$40,000.00, of which Johnson received \$16,930.00.

THOMPSON TROPHY WINNERS:
1929—Davis, 184.90 mph • 1930—Wickens, 201.91 mph • 1931—Boyle, 236.93 mph • 1932—Wardell, 237.88 mph • 1933—Tamm, 240.12 mph • 1934—Wickens, 250.19 mph • 1935—Belmont, 264.26 mph • 1937—Ellis, 284.91 mph • 1938—Turner, 282.41 mph • 1939—Turner, 283.53 mph • 1944—(Pitts) Reagin, Johnson, 372.95 mph • (Jet Engines) Lombard, 385.92 mph • 1947—(Pitts) Reagin, Oakes, 396.19 mph • (Jet Engines) Felt, 390.70 mph.

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AVIATION
WEEK

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HYPOXANTHINE RIMSY

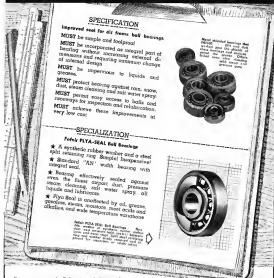
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Air Parcel Post

Post Office officials are disappointed—but not discouraged—at first rough estimates placing the September air parcel post volume at between 250,000 and 300,000 lb. This is actually below the 300,000,000-lb-a-month volume—100 percent of the current surface parcel post business—the Department envisions eventually.

Both Post Office and airline officials agree that the main reason for the poor first month showing on air parcel post was delay in presentation. Business circles and the public generally are not yet widely acquainted with the new service. The advertising campaign to get it across is put now getting into full swing.

Air Transport Association reports that air parcel post to date has not made a noticeable dent in Air Express business, which has leveled off recently.

Parts Evolution

The Air Force and Navy are taking another close look at the \$48,900,000 worth of surplus engines and parts which the War Assets Administration is trying to peddle before it goes out of business next Feb. 28. The introduction of an military transport aircraft equipped by "Operation Vulture" has exposed the armed services to see whether they don't need considerably more of the material they thought when they made a survey last spring.

Both WAA and the military are afraid of Congressional censure if they are found to sell in such large quantities of aircraft parts for which there are no obvious uses. Besides, parts sold at just a penny for nothing have a way of going out back doors and appearing on the market again.

Break for Alaska

Residents of Alaska who believed they saw "goose" for airlines landing strips into the territory during the eighteenth West Coast maritime strike of 1946 find themselves getting a better break during the present shipping stop.

In 1946, Alaska citizens, once air lines (especially non-scheduled operators) charged exorbitant rates for landing fuel out from the Pacific North West. This year, with more planes available and more companies competing for the business, both passengers and cargo rates on the Alaska run have actually dropped during the strike. The Amer-

Air Force Shuffle

U S Air Force will continue its reshuffle of the high command to coincide with the administration of Chief of Staff Hoyt H. Vandenberg. Next to go from the top level will be Gen. Mark S. Foy, who will soon be eligible for retirement, will be replaced by Lt. Gen. Louis. Next, now deputy chief of the Air Staff for Operations.

Gen. Joseph T. McNamara is not expected to remain as head of the Air Material Command and may be replaced by Gen. Mark S. Foy. Next, now deputy chief of the Air Staff for Operations.

Gen. Joseph T. McNamara is not expected to remain as head of the Air Material Command and may be replaced by Gen. Mark S. Foy. Next, now deputy chief of the Air Staff for Operations.

Next on the Quiet Program

Next project on the slate for Army research (Research Foundation at Boston, a study by the working effects of noise, vibration, and shock, and multi-impact properties, on the Goolyette design.

Further emphasis is considered one of the most serious offenders among present day aviation noise sources. The quieting demands was demonstrated by the first test work on a Boeing Vought and a modified Piper J-3, and presumably there will be no major delay in making a "good neighbor" for close-in aircraft flying in standard conditions, out of the Dark, as well.

Court Fight on Flight Training?

There for administration of the GI flight training program was placed squarely on Veterans Administration Gen. Gay by Harold A. Kest, newly-elected national commander of AM-VETS, his work, as a statement put before the Senate legal action against Gen.

Kest and AM-VETS was shaking typical cases in which veterans had been denied flight training, before King a suit asking a discharge judgment against the GI bill at night at night, and an injunction from

federal court to enforce the findings. The military and anti-veterans officials of the Administration is demanding detailed and certain individual notification of such (flight) cases, leaves no alternative," Kest said.

Long Range Bombers

Strategic significance of the Convair B-58B riding off the East West production line is that USAF will now have a combat group capable of delivering the atomic bomb in significant quantities to any possible Eastern foe without the help of a move into advanced bases.

For example B-58 groups now in England are an uncommitted part of Europe but would have a heavy defensive concentration because potential enemies are already well armed at attack from that quarter. However, it is still taking off from North America bases would give no advance warning and could use a wide variety of approaches to target areas.

Recent RAND-USAF maneuvers over England indicated that even the highly developed British jet-powered fighter system was not effective against high altitude night bombers using radar counter measures. The B-58B will rely primarily on ground-to-air radar and weather, radar counter measures and altitude for its defense rather than maneuver at the point of fighter.

Labor Shortage???

U S Employment Service believes the aircraft industry will not have too much trouble in drawing labor from other fields to meet its expanded production program. Relatively high wages, better working conditions and large-scale use of women are the main attractions on the aircraft assembly line, says USES. Skills handout is not will be successful in drawing skilled workers, electricians and mechanics with A and E licenses.

Lockheed Labor Peace

The three year study of the National Planning Association on the "status of the aircraft industry" will include a report on the potential solutions of Lockheed to the International Association of Machinists, independent union. Being prepared by Dr. Clark Kent, director of the University of California Industrial Relations Institute, it will be one of 15 reports made by NPA.

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FOR BETTER PROGRAMS OR

FOR BETTER HYDRAULIC DEVICES

AVIATION WEEK, October 28, 1999

AVIATION WEEK, October 18, 1945

DOMESTIC

Robert J. Collier Trophy competition will meet in Washington this week to select the winner for 1947 of the award given annually for the greatest achievement in U.S. aviation.

May, Alfred J. Williams last week presented his twelve-cylinder Continental F1P "Goldbeater" to the Smithsonian Institution. The orange and black-striped biplane, often seen at air shows, was believed to be the last of its type operational.

Karl Compton, president of Massachusetts Institute of Technology, last week awarded Dr. Vincent Bush its chairman of the National Defense Research and Development Board. Bush returns to the academy of Carnegie Institution of Washington.

Twelve Navy fighter and attack planes, F4Fs, F8Fs, AD-1s, made a two-day Moffett Field, Calif.-Hemlock flight, refueling on constant circuit at 800 mi. intervals. Flight was to protect our water-faring craft.

Delta Air Lines has taken delivery on the first of five DC-6s. Reminders are expected to be accepted before the end of the year.

FINANCIAL

National Aviation Corp. reports net income for nine months ending Sept. 30 of \$123,950, after taxes but before security transactions. Net loss on securities sales amounted to \$150,955.

FOREIGN

Sir Arthur Whiston-Brown, who made the first nonstop Atlantic crossing with the late Sir John Alcock in June, 1919, died in London at the age of 61 in a Windsor Motor limousine. The two flyers made the 1919 flight, crossing from Newfoundland to Ireland in 16 hr., 12 min.

Australian government has objected to the Canadian government's plan to authorize Canadian Pacific Airways to operate a trans-Pacific service under with Australia National Airways. Australian government has long been opposed to permission to operation of international service by private-owned airlines.

Civil Aeronautics Administration has opened a new bureau in Buenos Aires. Office will be headed by D. L. "Dick" Torrey with CAA in Washington.

Pakistan will establish a government-owned repair and overhaul base to handle work for the country's two airlines. Company, established at Islamabad, with the government putting up \$450,000 and Orient Airways and Pak-Air each contributing \$575,000.

INDUSTRY OBSERVER

Chance Vought's new 1600-hp Navy jet fighter (XF7U-3) has made its first flight at the Naval Air Test Center, Patuxent, Md. The XF7U-3 is powered by a pair of Westinghouse J4C jet engines located at the wing roots on either side of the fuselage. It has the eleven control system developed for Northrop Flying Wing type aircraft but also uses rubber controls on the two control fins located on the wings for increased stability. Landing gear flaps are used to get high lift characteristics out of the XF7U-3 except take-off and low speeds. An arrestor is located in the nose. Except for the location of the vertical fin, the XF7U-3 configuration is roughly similar to that of the Northrop X-4, high-speed research plane.

A. V. Roe of Canada are building the XC-100, twin jet engine fighter for the Royal Canadian Air Force, at Toronto, with hopes of also selling it to the Royal Air Force and the U.S. Air Force. The two jet engines, also being developed by Avro, are mounted above the wing roots on either side of the fuselage. V-type landing gear and a relatively long airframe with a single tail are other design features.

Another Avro Canadian project for a jet bomber trainer (XC-101) has been abandoned after construction of a mockup because of anticipated production difficulties. This trainer was to have been powered by the Chausson, a Canadian-built jet engine.

DeHavilland is working on a new fighter project designed to replace the P-51 Mustang. The new fighter will feature twin jets, swept-back wing and tail surfaces, and twin tail booms. Meanwhile DeHavilland's newly-formed company, Aspender, is producing the Mustang Mk. 58, a new night fighter version of the renowned bomber. Swedes are expected to place another order for more Vampire jet fighters with DeHavilland.

Convair-Liner production at San Diego has reached the rate of 25 transports per month. Current customers tell Aviation Week that by the end of October 60 units will have been completed. At the end of September 61 planes had been delivered as follows: American Airlines, 37; Pan American, 15; Western Air Lines, 4; Continental Airlines, 2; KLM, 2; and Trans-Australia Airlines, 1.

Curtis-Wright claims that the XF-87, four jet engine fighter, flew at better than 500 mph, during Phase I flight tests at Muroc. Company did not specify whether the work was made in level flight. Lee Miles, Curtis-Wright test pilot from the airplane division in Columbus, and Mr. Robert L. Johnson, USAF holder of the world speed record, are doing the test work on the F-87. Production model F-87s will be ordered for test. General Electric J-47 jets.

McDonnell's XF-88 long range USAF fighter now at Muroc for flight testing, will carry on 22,000 cu ft. in its nose and is expected to climb at better than 15,000 feet per minute. Maximum operating range should be more than 2100 miles.

Howard Hughes will begin sea water tests of his four jet fighter boat during October with flight tests scheduled in December. Hughes' idea: the big boat will carry four jet fighters but not four jet engines. Hughes has four jet fighters but no sea trials have been made in the experimental craft.

Alcock's production contract, Australian Supply and Development Department has awarded a contract for an experimental aircraft incorporating boundary layer control. The new design will utilize the "boundary" profile developed by Dr. Shihab Gholbardi. The wing will be tried initially on a towed glider to determine basic design parameters before construction of the research hopes. Advantage of the shape is its use at as high as 40 percent wing thickness with its high lift wet wing due of a conventional wing only 10-12 percent thick.

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Declines of the B-36's increasing stalling power was made at Ft. Worth during formation flights in the air, said

New B-36 to Give USAF Greater Range

Data released for first time on B model of giant bomber, soon to go into service.

By Robert Hays

Fort Worth, Tex.—By the end of this year the U. S. Air Force will have a striking force of Convair B-36 bombers capable of delivering atomic bombs over a 12,000-mile range.

The status that for the first time over the concept of strategic air power was equally propounded a nation has the technical equipment to put that theory into practice. With the approximately 20 Convair B-36s that will be delivered to the 7th Bomb Wing of the 1st Air Force by next January, that wing will be able to bring virtually all of the northern hemisphere under its atomic bombardment from bases on the North American continent.

Reaches Testimonial—Recognition of the B-36, nicknamed "Boaty" during its service in the southeast of the Strategic Air Command's striking force was formally made at a press demonstration here last week. Among the witnesses who offered a series of startling statistics in support of the B-36 were Gen. George C. Kenney, retiring chief of the Strategic Air Command, and its chief scientist on the combat efficiency of the B-36, Maj. Gen. George H. Kenney, Air Force commander, and Maj. Stephen F. Dillon, chief USAF test pilot on the B-36 program.

Genes cited for the strategic bomber:

- A 12,000-mile nonstop simulated combat mission will be flown this fall by a B-36. The bomber will take off from New York, drop 10,000 lb. of bombs on Emerald and return to New York without aerial refueling.

- The B-36 will sit in the bombing from 40,000 ft. at a speed of better than 575 mph, that is speed in the target area. This is with a full combat load of armaments, armaments and 10,000 lb. of bombs.

- The B-36A has flown an 8000-mile nonstop simulated combat mission dropping 25,000 lb. of bombs at the halfway point and averaging 325 mph for the entire mission.

- Maj. Dillon told of another B-36A mission he flew early in October carrying less than 12,000 lb. of bombs to Mexico. Bomb release trouble was encountered over Mexico leaving one 12,000-pound bomb hanging in the racks for the return trip to Fort Worth. Flying at 37,000 ft. the B-36A, returned 53 mph.

- **Tearing Machine**—The B-36A's with which the 7th Wing is now equipped do not have armaments on all engines—some were structural difficulties and have the usual accessories tools of a large new aircraft. They are being used primarily for training and are not yet, are

struts of the augmentation either fit or ready for combat.

- With the B-36A the 7th, commanded by Col. Alex Clark, expects to be fully equipped combat operations. Already 11 B-36s have rolled off the Convair line at Fort Worth with another 17 on the final assembly line. First deliveries of the B-36A to the 7th wing are expected test units. The 7th wing plan to test one B-36A per week.

- **Coastal Version**—The B-36A has been a new version of the Pratt & Whitney R-4500-17 engine that boasts 3,000 horsepower from 3,000 to 3,100, providing a total increase of 100 hp over the A model. The B-36A is completely equipped for combat from the tail fin to the nose. It has a full complement of fuel tanks and wing fuel tanks with special bullet-proof skins providing particularly valuable protection. Underneath the wing is made from T-38 aluminum which is supposed to deflect a .50 caliber bullet straight up at an angle.

- **Breakdown** of the B-36 can be varied by the use of different racks from 730 bonded pounds to two 42,000 lb. Convair B-36A, largest conventional bombs available and more than one atomic bomb. Maximum bomb load dropped in its has been 75 tons, thus used pound bombs over the Gulf of Mexico.

- **20 tons Tonnage**—The B-36 has an unusually heavy armament with a color controlled tail gun firing a 7.5 inch cannon and two 30 mm cannons. Tail gun operates entirely by radio from a station below the rear wing gunners.

To achieve this during the long cruising periods all four engines fire. In the nose and tail are retractable. Two twin 20 mm cannon turrets are mounted at the base of the dorsal fin and are controlled from the top rear sighting



Ground clearing at newly-completed B-36 at Convair. Six F-46s and Convair's production line plant across the field.

Through the use of external heat equipment and the whirled engine tanks, Convair officials expect to be able to extend and find the B-36 with out stopping the engines. An analysis of several USAF aircraft in the cargo carriers Convair has stepped up its production of the trucks from two per week to two a day.

- **Boards Bay Tanks**—Another bomb modification for the B-36 consists of a 1000 gallon gas tank specially designed by Fairchild Tool and Rubber Co. of Alton for the B-36. Four of these tanks can be carried in the B-36's bomb bay to add 12,000 gal. of fuel to the 21,125 gal. carried in wing tanks. Integral tanks are used for wing fuel with special bullet-proof skins providing particularly valuable protection. Underneath the wing is made from T-38 aluminum which is supposed to deflect a .50 caliber bullet straight up at an angle.

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station. A smaller pair of twin 20 mm turrets are located in the nose belly and controlled by the lower rear sighting station. Another pair of twin 20 mm turrets are located on the top of the fuselage just aft of the cockpit and controlled by the forward sighting station. One pair of 20 mm cannons are mounted on the top panel of the lower fuselage's sighting turret.

- **15 Man Crew**—The B-36 is manned by a crew of 15 including three pilots, four navigator bombardier radar operator, two flight engineers, two radio operators and four gunners. One engi-

neer is constantly stationed at a rear sighting station to check operation of those gun propellers and engines near those of those are visible from the cockpit.

Personnel crew station has three dials with two pilots and the flight engineer on the top level. All engine controls are handled by the engineer. Radio operator is on the second deck with navigation, bombarding and radio operators in the lower deck which opens onto the fuselage nose. There are of bombs are located in the pressurized tail section for crew rest during flight.

Convair B-36 Bomber

SPECIFICATION AND PERFORMANCE DATA

Max Gross Weight	126,000 lb.
Length	101 ft. 6 in.
Wingspan	110 ft. 0 in.
Height	41 ft. 7 in.
Capacity	6 Pratt & Whitney, turbo-propellers, 3,000 hp. in 3 B-36A, 10,000 lb. of bombs
Max speed	575 mph (altitude 37,000 ft.)
Max cruise	325 mph (altitude 37,000 ft.)
Normal climbing speed	160 mph (altitude) 49,000 ft.
Service ceiling	49,000 ft.
Max range	12,000 mi. with 10,000 lb. of bombs
Takoff distance	1,000 ft. with 10,000 lb. of bombs
Takeoff load	10,000 lb. in 11,000 mi., 25,000 lb. in 10,000 ft.
Max bomb load	75,000 lb.
Max cargo load	42,000 lb.
Crew	15, including 4-man relief crew
Fuel capacity	21,125 gal. in wing tanks, 11,000 gal. in bomb bay tanks
Oil capacity	12,000 gal.
Landing gear	tricycle (stepped-down gear, 4-wheel track main gear)
Propellers	6 Curtiss Electric, 40-inch pitch
Armament	1 Model, 19 inch director

Prerogative companies are connected by a 15-ft. tunnel through the bowels of the Columbia tunnel. The tunneling is on the basis of a free-wheel system, and pulling themselves along on an overhead cable.

► **Crews:** Team-Crew's past Fiat World's plant now selling on a B-128 every week to 13,000 men from headed by D. J. Clay and J. W. Lamm, making engineers of Columbia's Fiat World's drivers.

Production of the B-128 requires a tremendous parts fabrication within of the Columbia plant to produce 55,000 special parts for the big bomber in addition to three made by subcontractors and provided as government furnished equipment. Total of 1000 machine tools and 57,500 production tools are used. Assembly line parts 1800 separate sub-assemblies into the final version of the plane. The newest B-128 has taken up the space formerly used by two C-119 B-128 production and steadily line during the war.

► **Develop on B-128:** B-128 production will not sell into next fall and overlap the beginning of the North American B-128, eight jet fighters, assembly line. Left of aircraft order which Cessna will build the Northrop designed bomber on was received in Fiat World's only in October. Fiat has the B-128 equipped with turbo engines, jet engines, engine installations and featuring the Fiat & Whitney VDT engine have been shown direct at least for the present. However any serious determination in the international situation would probably mean extension of the present B-128 contract beyond the 95 week and during of the turbo-VDT plane that was reported to add 100 mph to the engine's horsepower.

Gen. Ketterer resumed up the USAF attitude toward the B-128 program when he was asked if he thought the B-128 had a future. "I would say that it has a future," Ketterer replied. Obviously the USAF will rely on the B-128 until something better comes along of the production line.

Enyart First American Elected Fiat President

William R. Enyart, president of Saunders Associates, Inc., Thyristor, N. Y., and former NAA president, is the first American to be elected president of the Federation Aeronautique Internationale, 45-year old world governing body of sporting and private aviation. Enyart was elected at the recent Fiat conference in Paris, France. Last afternoon of the conference occurred, with three dissenting votes out of 20 nations represented, nomination of the U. S. delegation to hold the 1949 Fiat conference at Cleveland, Aug. 28, ending the National Air Races. The

winning countries were Russia, Poland and Romania.

John J. Enyart, representative of the National Advisory Committee for Aeronautics at the embassy in Paris, was elected Fiat vice president from the United States.

NASAO Meets

Joint enforcement move expected as outgrowth of Boston sessions.

By Alexander McQuarrie

Boston—Conferences to coordinate the work of federal and state aviation officials at a vigorous enforcement policy to control law, aviation and aviation flying, and secured efforts for flying safety, aviation will be probably the most important outgrowth of the recent convention of the National Association of State Aviation Officials here.

Delos W. Kemmer, CAA administrator, said, last time appearance before the officials from 45 states who were represented at Boston, pledged full CAA cooperation in a federal state conference and gave the state officials a verbal guarantee that satisfactory coordination would be the result of such a meeting to be held very soon. Cooperation was also indicated by Joseph J. O'Connor, Jr., CAA chairman, in behalf of his agency.

A statement issued on enforcement action against local violations after by Kemmer, compared state actions and federal actions in a light favorable to CAA. Challenged by L. L. Schwabach, Massachusetts representative, CAA officials admitted that the agency was not directly comparable, and that the comparison was not accurate.

New President—Edward J. Kopp, Virginia representative, director, who claimed president of NASAO, seconding Chairman F. Conner, Indiana state member director. Kopp had served three times as secretary-treasurer before the resignation of CAA A. B. McWhorter, in paid retirement secretary, a few months ago. McWhorter is mentioned in that position, with office in Washington.

Prof. Leon Bellinger of Harvard University Business School called upon NASAO and federal agencies for support in developing a more favorable regulation environment for district airports for greater safety of general aviation. CAA officials indicated that agencies which can be such well working together will be such and quiet. He suggested a new category be developed for aircraft capable of using such facilities.

Members of the group arranged two quick airplane models by Armstrong

Research Foundation, make four double landings and takeoffs at a frequency of 100 in Howard University airport. Later they posed a simulation of a landing, sending additional federal support to the foundation's project to improve the physical airport.

U. S. Senator Owen Brewster (R, Me.) stressed accomplishments of the Congressional Air Policy Board in the last Congressional session and emphasized importance of continued Congressional vigilance on aviation legislation at the future. He urged strongly for action on the commercial transport prototype legislation which has not been completed in the midst of the closing of Congress.

CAA Chairman O'Connor noted their personal experience of aviation air operations, which he said the board was set to be able to handle. He called for continued representation of federal and state governments, pointing out the evils of duplicating and overlapping regulations.

In other sessions NASAO paid particular attention to airport problems and aviation training. Resolutions called for:

- Issuance of Federal Airport Act appropriations to \$100,000,000 a year necessary provided under the Act, for the remaining four years.
- Authorization for federal allocations up to 75 percent of costs for Class I airports if individual contribution does not exceed \$55,000.

A subcommittee of the Airport Act to allow increase of grant expenditures if necessary after grant has been accepted, and to accept planning work and providing air control plans.

- Congressional authority to construction which have assigned certain airports primarily built for military purposes, so that they may be properly converted.
- Development of improved service facilities at airports.
- Appropriation of \$5,000,000 a year for the next five federal state aviation programs.

Use of civilian flight schools conducted with high schools, colleges and universities, in a national job training, landmines and administration system course for all potential military aviation.

- Annual state reports.
- Removable insurance rates for customers at borders on weekends, when greatest flow of air traffic often places.

NASAO committee of several states instructed to set Congress for consideration of the CAA flight training program and its working of the present law in view of the Veterans Administration's important allocation of the members of flight training during thousands of veterans who have lived after to support in flight training.

AVIATION WEEK, October 16, 1948



New Four-Engine Lightplane

A four-engine aircraft-type plane has made its first flight at New Orleans and is believed to be the only plane of its kind ever to fly in this country, and possibly in the world.

Built by Mounted Vincent Aeronautical, Inc., the craft is powered by four Continental 18-cylinder driving four four-cylinder pusher propellers. Its builders are now constructing a second plane to be used in state testing for CAA contracts.

Five-Plane—The Mounted Vincent plane is all metal, except for landing gear, has a gross weight of 4800 lb. and empty weight of 3000 lb., which is lighter than a C-47. It has a span of 46 ft. and length 34 ft. At the rate of the cabin is a lavatory.

Cruising speed is 145 mph, and in regular speed tests in outboard bench tests, each of the four engines had a total of 172 hp—enough for light planes of five or six engines. Present plans call for installation of cost-effective propellers.

AVIATION WEEK, October 16, 1948

power, rather than one power plant of equal output output. Mounted Vincent believes it can attain the same margin of safety possessed by transports of a larger size.

Only other four-engine small plane that flew up to the second air reveal built here and should be next configuration of larger planes, in the same other experimental phase.

► **Credit:** The company, organized of Eastern Air Force personnel and experienced aeronautical engineers, already has spent a considerable sum of money on the Star Flight. Its commercial production will be in two years, say its designers to be set, but at that time it holds. The plane would cost more than the lightest small four-engine transport plane although still in below the two-engine biplane.

Mounted Vincent designer part of the former Douglas branch at Michigan as also had his headquarters at 125 N. Haverhill New Orleans. Designer of the Star Flight is Art Turner, former engineer with Lockheed.

Aviation Officials Active in Securities

Substantial trading by leaders of Eastern Flight Aircraft Corp. has highlighted a series of security trades effected recently by the Securities and Exchange Commission.

In St. Louis, Missouri, the commission disclosed of \$200,000 worth of stock on July 15. On July 15, the commission disclosed of \$200,000 worth of stock on July 15. The stock was sold on July 15, the commission disclosed of \$200,000 worth of stock on July 15.

► **Additional shares:** The commission disclosed of \$200,000 worth of stock on July 15. The stock was sold on July 15, the commission disclosed of \$200,000 worth of stock on July 15.

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AVIATION WEEK, October 16, 1948

BRIEFING PRODUCTION NEWS

► **Consolidated Vultee Aircraft Corp.** has received letter of intent authorizing that of work at Fort Worth on B-26B jet bombers under contract with Northrup Aircraft, Inc. Convair also has subcontracted with Boeing for construction of 187 nose landing systems for the B-50. Deliveries are to begin next spring.

► **Curran Wright Corp.'s** Columbus airplane plant has received a new Navy order for 300 Mark XII dropable fuel tanks with deliveries to start in December. This brings the plant's total orders for this item to 500.

► **Sperdy Gyroscopic Co.,** Great Neck, L. I., has received an order for 1155 altimeters taken from the U. S. Army Signal Corps.

► **Thompson Aircraft Products Co.,** Cleveland, is looking for production of jet engine turbine blades for both Westinghouse and General Electric engines. The company long has been a major supplier of blades for Allison engine divisions at General Motors.

► **Gleason L. Martin Co.,** Baltimore, is installing drilling equipment on 14 PB-5 Monarchs of the Coast Guard. Work has been slowly completed on the first four, with modification time running about four to five weeks per plane.

► **Beech Aircraft Co.** has leased additional space in the government-owned plant at Miami, near its main Seattle facility. Boeing now occupies about one-third of the plant and will use the space for development work and storage.

► **Lockheed Aircraft Service,** MacArthur Field, Sunnyvale, L. I., is hiring 300 new total workers to help in contract to manufacture C-54s used on the B-24 mission (Aircraft Week, Sept. 27). Total employment is expected to reach 1100.

► **Bohr Aircraft Corp.,** Chula Vista, Calif., has doubled employment since last spring, is now up to 2100 and is expected to reach 3000 next year. Bohr, subcontractor to many of the prime manufacturers on the West Coast, has leased an adjoining plant from the government to take care of its expanding operations.

► **Pennell Helicopter Corp.,** Mojave, Pa., is progressing on work up of its XH-35, C-54 size transport helicopter for the Air Force, and on the HH-37 for the Navy.

► **Chrysler Vought Aircraft division** of United Aircraft Corp. has moved 20 percent of the 50 million lb. of component in its engineering from Stratford, Conn., to its new house at Dallas. Final plans call for the final production airplane to leave the Dallas plant next March.

► **Jack & Helene Friedman Industries, Inc.,** Cleveland, has opened a new branch office at 605 Hollywood Professional Building, 2046 Hollywood Boulevard, Hollywood 28, Calif. It will be in charge of P. R. zone.

► **Kanaw Aircraft Corp.,** Windsor Locks, Conn., has delivered to the Navy a helicopter rotor and control system, completing one phase of a contract Kanaw has held since June, 1947. Navy already has received engineering data on the Kanaw rotor, and the contract specifies further test runs at the National Advisory Committee for Aeronautics, Langley, Va., laboratories.

► **Beech Aircraft Corp.,** Wichita, Kan., has reduced its Bonanza production to one-third for the winter months. Production of Model 38 Bonanzas has been reduced in 15-4 months. Beech had been producing from three to four Bonanzas daily. Employment has been reduced to 2450. Approximately 1750 Bonanzas have been produced to date.

West Coast Holds Majority of Orders

Increased sales between east and west production is shown by a last minute survey of the aviation industry, but the West Coast's share says firms still hold 55 percent of all orders allocated up to this time by Air Force and Navy.

During the war the West Coast industry was credited with from 60 to more than 50 percent of national airplane production at various peak periods. It is doubtful that this condition is likely to be repeated in any future production boom.

There is indication that eastern industry now has become fully equipped for the handling of current orders and a total backlog of \$1,499,215,236 (Aircraft Industries Association figure) reported by Boeing, Lockheed, North American, Douglas, Convair, Westinghouse and Pratt & Whitney. The eastern share of \$150,454,000 since Jan. 1 slightly less than 10 percent of the backlog total is represented in the number of construction orders.

► **Mass Space.** The western firms have added 1,628,012 sq. ft. of production space to east facilities during the past six months and now declare a total of 77,284,649 sq. ft. of plant area, with another 5,871,170 sq. ft. cranked to their sublet holdings. Eleven coast plants of the seven companies now employ 32,956 persons, their nearest branches in southern 19,879.

Shortages of materials, parts and equipment have eased on the West Coast, but skilled workers—tool designers, master layout men, draftsmen, mill operators, template makers and plastic pattern makers—still are at a premium and hard to find.

Accident Rate Drops

The accident rate in reform and repair plants seems destined to drop during the second quarter of 1948, according to the Bureau of Labor Statistics. For the last half of the year, the reform industry injury frequency rate was slightly below last year, while in aircraft parts plants injuries occurred only half as often as they did at the previous year.

In aircraft parts, there have been an average of 8.5 disabling injuries for every million hours worked, compared with 11.3 last year. In subassemblies, there have been 4.5 injuries, compared with 4.8 last year.

For all manufacturing industries, however, the rate was up at a rate of 13.4 for every million hours worked, thus putting the aircraft industry far ahead of the average.



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oil company trademark! Over 1,000 important U. S. air-bus companies in aviation Coast-to-Coast—get Socap-Vacuum products always within cruising range.

Small aircraft owners will be glad to know that Mobil Oil Aero is lighter grades—White, Dural, Gray and Gold—now in their supply. Heavier grades of Mobil Oil Aero for commercial planes—Red and Green—Dural—are expected to be in their supply early next year.

SERVES EVERY BRANCH OF AMERICA'S AIR INDUSTRY!

MOBIL OIL COMPANY, INC., and AFFILIATES: MOBIL OIL PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

Alcoa research points the way to BETTER DIMPLING of Alclad 75S-T6 sheet



Photomicrograph of successful fish-tail joint between Alclad 75S-T6 sheets.

As soon as aircraft builders undertook the fish-tailing of hard, high-strength aluminum alloys such as Alcoa Alclad 75S-T6, it was quickly apparent that tools and methods used for dimpling other alloys would not be suitable. While new dimpling techniques were being developed by the aircraft industry, Alcoa research attacked the problem from the standpoint of improving the dimpling characteristics of the new alloy itself.

A new interrupted aging treatment, in use on all Alcoa 75S-T6 sheet since the summer of 1945, improves its cold dimpling qualities as compared

to the original 25-hour treatment. Research has established, too, that hot dimpling without cracks can be carried out at a temperature low enough to avoid damage to the heat-treatment of the sheet.

Alcoa has supplied this basic information on 75S-T6 to the aircraft industry to aid in the development of suitable tooling and procedures to fit individual needs. Our complete pool of flight-metal knowledge is at your service. ALCOA COMPANY OF AMERICA, 2182 Gulf Bldg., Pittsburgh 19, Pennsylvania. Sales offices in principal cities.

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ENGINEERING



Propellers section along chordwise axis; propeller blades hatched from...

...the extreme (left) post rolled off...



are found in this 700-hp biplane, two-blade version...

...and also in this 640-hp biplane, three-blade arrangement

Advantages Seen for Extruded Propellers

Thin-sectioned, two- and three-blade, metal airscrews performance-tested in comparison with wooden prop.

Now, low-cost, fixed pitch, aluminum alloy propellers being extruded instead of forged blades and hub show promise of improving lightplane performance.

The two-blade metal propeller weighs but 4 or more than the 11-lb. standard wood unit as designed for the Ecoupage used in the tests.

► **Blade, Hub Details**—Close is great contrast from root to tip, which, in effect, causes gusts activity toward the tip. Fig. 1 shows section taken up

approximately 6 in. apart, and how the hub and blade root sections fit together.

The leading edge is given a "backbone" for stiffness, milled off toward the tip. Fig. 2 depicts the blade in cross-section and also shows the hub. The latter is made by merely cutting its contours to length and having the motor hole. Bolt holes are drilled as usually.

The black area on the blade extremities indicates the portion milled off. Figs. 3 and 4 show the finished propellers. The three-blade prop was made

from identical extrusion and located with its sections the same distance from the centerline as with the two-blade. The tips were then cut back to the required reduced diameter.

► **Tests Conducted**—A series of flights were made to compare the performance of the two fixed pitch metal propellers with the standard wood propeller as designed for the Ecoupage powered by the Continental C-75 engine.

All flights were made under carefully controlled conditions, the same flight patterns always being used. Each flight took approximately 30 min and the recording flight was run after about 10 min of ground time, just long enough

heat the aircraft



before it's off the board

In designing an airplane—whether to test, shape, or form—consider the heating as early as possible and give yourself the most "degrees of freedom" by selecting combinations between the most complex line joined. These heaters will function on the ground, as well as in flight, can be installed practically anywhere in the aircraft, and have checked up records of performance and safety record to none.

There are a few joined applications which were serious and substantial early in your preliminary design: heating for cabin, cockpit, cockpit, instrument, windshield, guns, and exhaustive air—making of emergency and wings—engine warm-up—air surface deicing.

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2 APPLICATION

CROSSING IN A SERIES OF WIND
CROSS IN CHARACTER TYPE
HEATING THE AIRCRAFT

The above a higher rpm, and thus more power in a climb without exceeding the maximum rpm at top speed. The increase in horsepower accounts for most of the increase in climb.

When further corresponding was permitted to increase the rpm in 70% to the top speed condition at resulted in an increase in top speed of 8 mph, to 120 mph.

That any increase in horsepower obtained by increase in rpm, results in an increase in performance for all flight conditions where wind prop is used.

► **Fixed-blade Model vs. Wood**—The three-blade model propeller was developed because it has three advantages:

- Slightly greater, because at reduced by speed brought about by the smaller diameter.
- Operates smoother, as a result for all three-blade prop.
- Its constant diameter, advantage in operation from rough fields at high rpm. On the contrary, the maximum loading prop length may be reduced or the height of the engine may be low, and the better visibility in a climb.

Further engine design usually can be improved by a reduction in engine height, better weight penalty by the use of these blades.

It is noted that a three-blade wood propeller was developed for these reasons and that the improvement did not indicate complete success. The three-blade model propeller was applied to less better because reduction in efficiency would not be as severe.

Also, it was felt that propeller resulting from the thinner section would equal or exceed the loss because of the reduction in diameter.

These experiments proved to be true, since the three-blade propeller was improved in climb over the wood propeller amounting to 8 percent, as shown in Graph 1. Top speed did not show up quite as well, but the loss was not as great. It is felt that further gains will be made.

The angle of attack had to be reduced to 15.6 deg. at the 100% station to cause the engine to develop sufficient horsepower and rpm. This is because the total width of the blades is a little too great for the diameter used (the "wingy heta" is too high).

Best efficiency can be obtained with the blade angles are increased slightly to around 16 or 17 deg. the most angles as used for the two blade model propeller.

To recognize that without a loss in rpm in the climb, either the diameter must be reduced further or the chord should be reduced. It is planned to do a bit of both in the next future. Angle of attack, diameter, and total blade width would then be reduced by 10% and rpm available—Walter H. Koff.

Dives Vary Craft Temperatures

Magnitude of gradients in structural components is disclosed in series of high-speed tests with P-80.

The advent of very high speed—aircraft extending into the supersonic realm—has brought a wide variety of structural analysis criteria lately including the use of independent experience in the low speeds associated with aircraft in the past.

One of these phenomena is the extent of thermal stresses by temperature gradients produced during prolonged dives.

► **Altitude Change**—In a dive from 35,000 ft., a fighter plane will move from a square of cold air to a region of air positively warm as new air level in an inch at one or two minutes. During this brief period of time the engine structure will undergo an increase in temperature of as much as 125 F.

Although portions of the temperature increase will be dissipated by radiation and other means, a substantial amount of heat will be added to the structure in the process, causing a thermal expansion of the material parts.

► **Friction Effect**—Another condition through which these temperature gradients can be created is use of considerable frictional resistance in the heating effect of air friction at high speeds.

Already this has created serious problems in the design of certain engine and wing, and its alleviation requires special cockpit refrigeration equipment for pilot comfort. Large changes in temperature may produce temperature gradients of large magnitude.

► **Fast Cooling**—To investigate the extent of such gradients, the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics recently conducted a series of high speed dives with a specially instrumented Lockheed P-80 jet fighter.

A total of 19 thermocouples were placed throughout the wing structure to provide temperature measurements. In addition, a special integral fuel component was built into the wing to provide data on the effects of thermal gradients of structure exposed to large masses of cold fuel.

A special 0.040-in. paint coating was applied to the left wing surface to simulate a fuel which might be absent on longer high-speed flights to obtain surface temperatures.

Long shallow dives were started at 15,000 ft., pullout was made at 9000 ft. and through arc of dive broken true altitude then increased 150 mph. Three vertical rates of descent were

used to provide a necessary range of velocity, 300, 500, and 600 rpm, requiring 0.8, 1.3 and 2.2 sec., respectively.

► **Specific Studies**—Seven combinations were selected for study: skin and stiffeners, skin and ribs, skin and spars, spar cap and spar web, fuel and structure of fuel tanks, skin and spar cap, and paint layer and skin.

The tests indicated that maximum temperature differences occurred between the skin and the spar caps, a differential of 30-40 F. being obtained during the dives.

This was as predicted since the first spar and large surface area of the skin provides good heat transfer, whereas the large mass of the spar caps hinders this dissipation.

Second largest temperature difference during the dives occurred between the fuel and the surrounding structure. Temperature of the fuel remained substantially constant throughout the dive, whereas the temperature of the adjacent structure increased 10 to 20 F. in the dives.

The dives also indicated the unusual properties of a relatively thick layer of paint on a wing.

Temperature differences between the skin and the paint were about 20 F. at the termination of the dive. The tests indicated that both thermal stresses and undesirable high skin temperatures can be alleviated in the use of paint.

► **Magnitude of Stresses**—Effect of temperature gradients on wing stresses is to place the skin parts in compression and spars in tension. Approximate magnitude of these stresses may be obtained by assuming that the entire skin area is completely restrained from expansion by the spar cap and that there is no buckling action.

With these assumptions, and letting ϵ_s = spar cap thickness, ϵ_w = skin thickness and P_s = compressive stress in the skin for complete restraint, then:

$$\text{Skin stress, } \sigma_s = \frac{\epsilon_s - \epsilon_w}{\epsilon_s} P_s$$

and

$$\text{Spar cap stress, } \sigma_w = \frac{\epsilon_s}{\epsilon_w} P_s$$

Using these first approximations, NACA determined that maximum compressive stress in the skin during the altitude dives was 10,000 psi, and this maximum occurs at the spar cap cap.

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Although this shims is not great enough to prove correct in a plane designed with five high strength factors of the 7-80, it is indicative of the substantial loads caused in a wing structure by temperature gradients resulting from high speed winds or rapid changes in speed—loads heretofore ignored in the structural design of aircraft.

With the inevitable rapid increase in aircraft speeds and formidable situations in the supersonic regime, it is clear that temperature gradients will have to be taken into account in future design of its design are to be avoided.

Reference

Trudell, Thord and Schell, Ernest A. Temperature Gradients in the Wing of a High-Speed Airplane During Dive from High Altitude. NACA Technical Note No. 1675.

Pesco Research Plant

Ray-Wanner Corp.'s Pesco Products division is building a \$2,650,000 production plant and research laboratory where high pressure aircraft parts can be developed and manufactured.

Pesco President R. J. Marshall indicated that the plan is to concentrate on aviation accessories "discussed by planes designed for supersonic and near supersonic speeds."

The secondary plant, located on a 35-acre site near Cleveland, is expected to be completed by next May. Building will house a complete self-contained lab, an electrical lab and a research lab for testing aircraft and analysis of hydraulic equipment. A separate laboratory building is under construction for the study of aircraft fuels. It will contain an altitude chamber for simulating the operation of aviation equipment under sub-Arctic conditions and at pressures equivalent to 50,000 ft.

There also will be equipment for testing rocket pumps and jet engine fuel pumps under high pressures.

How Much For a Dollar?

Increased complexity of modern fighting planes makes a big difference in the amount of aircraft procurement dollars will buy, while equipment and material cost increases also have contributed to the high cost of today's air power.

Two billion dollars would have bought quite an air force in 1924 when the services could have gotten one million fighters planes for that amount. The Curtiss P-8 (Army PG-2) and the respective services paid \$200,000 each and it was a whole lot of an airplane at that! Or the best procurement would have paid a fleet of 100,000 two-engine Keystone LB-6 bombers in the air in 1913.

the "X" in jet propulsion

Of course, there is no letter "X" in the words "jet propulsion", but, in the development of jet engines, a very big and important "X" was the design of a fuel pump for this service. This was as tough a problem as any ever tackled by Pesco engineers, and here are a few of the reasons why . . .

1. The pump must deliver a barrel of gasoline in 1 1/4 minutes . . . three times the amount previously required.
2. It must pump that amount at as much as 750 lbs. per square inch pressure . . . 15 times the pressure used by American airplane engines during World War II.
3. It must have nearly the same service life as low pressure pumps. This was

the real stickler . . . since gasoline has no lubricating qualities, the wear of internal parts increased much more rapidly with higher pressures.

Pesco not only developed a high pressure fuel pump that met all requirements but went a step further in producing a pump with two pumping sections . . . one for the main fuel system and the other for the secondary system which goes into operation automatically . . . just in case.

The success of Pesco's solution to the "X" in jet propulsion is attested by the fact that today every American production jet engine uses a Pesco high pressure fuel pump.





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AVIATION PRODUCTS

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Pilot Seat Affords Quick, 15G Ejection

Construction of Air Force experiments on pilot ejection seats has produced a new design capable of developing 15G acceleration in only 1 sec. And the seat contains arm rests, which reduce the effect of the rapid acceleration on the pilot's spinal column.

Aero Medical Laboratory, Air Materiel Command, began system and experiments shortly after V.E. Day, when German development data became available. Experiments were conducted with a 160-lb. ejection tower containing a pair of test, up which the seat was accelerated.

Although dummies were used for these early tests, humans have been ejected on subsequent occasions, both on the ground and in the air.

With pilot included, the new seat weighs about 500 lb. and is ejected at a speed of about 64 in. by a 38-in. telescopic gun with a 63-in. stroke.

Experiments in ejection seat techniques have revealed that a pilot can stand an acceleration of 15Gs safely, provided it is sustained only briefly. For future accelerations must be limited to about 10-12Gs of burst or to be avoided.

Fuel System Coatings Resin Vapour-Sealed

Elimination of porosity in fuel system coatings has been successfully demonstrated at the Air Materiel Command's aircraft laboratory plastic shop.

The method, developed by the automotive industry, was applied to a single point aircraft fueling system.

Porosity of components prevented fuel vapor from seeping through hoses, valves and valve stems, fittings, etc. to create a fire hazard. AMC solved the problem by sealing the coatings with a polyether resin, a liquid in its natural state, which hardens at 240 F.

Openings of the coatings are blocked, and resin is applied to drive out water vapor. Resin is applied to the exterior and the interior within the coating path the warm fluid into the pores. When the resin hardens, the coating is effectively sealed against seepage.

"Leakproof" Tube

Low maintenance and increased safety at ground level are the tube made by Funcoflex Tire Rubber Co., Akron, Ohio, for military and commercial aircraft. Stated in "held air free tubes longer than ordinary tubes," product utilizes special chemical on made sure to discontinue the normal seepage of air through wall.

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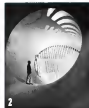


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Item	P.A. No 1020 Series Quantity Per Piece	Feed Number	Weight Quantity Per Piece	MTS Series Feed Number
Take Mounting	5	0 00000	4	00000
Insert	5	0 00000	20	00000
Cartridge	50	0000000	50	000000



New Supersonic Tunnel Largest Operating



Markedly easing the research potential of the National Advisory Committee for Aeronautics is the latest major addition to its Ames Aeronautical Laboratory—the largest supersonic tunnel now operating, capable of speeds up to Mach 1.6. A larger [6 x 8 ft, Mach 2] tunnel at the Cleveland Lab is not yet in constant

I Amos turned 65(64) last week. Model is supported on strong men. (strongman page), allowing them to be eliminated without turbulence caused by old strut-support method. Unilateral support at man's shoulder has been dropped. Also it adds to for children playing table.

2 Tearing valves, in large sections of the set where submerge conditions exist, serve to direct airflow around corners.

that tunnel can be operated by three men. The equipment permits regulation of speed of flow and density, and creates results of none.

[illegible]

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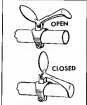
Air Comfort for Baby

To make air travel with infant more convenient, comfortable safety chair, bouncer, crib and bath, "Air-Naps", weighing less than 1 lb., is offered by International Latex Corp., 150 10 Ave., New York City. Safety sections on car seat make folding to stroller, and wide band can be strapped across baby's chest. Device inflates quickly, is airtight and waterproof, and can be carried in small bag when deflated.



Handy Thickness Gage

No bigger than a thin pocket watch, dual indicator gage provides easy means of measuring and comparing thicknesses of rubber, sheet metal, plastic, wax, etc. Made by L. S. Stauffer Co., Arden, Mass., small hand covers revolution up to maximum range of 1 in. on dial graduated in .001 in. Spindle is used by sliding serrated plate at top of gage. Fabricated made with die cut, chrome-plated case and standard dual compound parts, device shows two barrel openings on its back. Crystal is non-habitable.



Overhaul Aid

New national, Runco 3-Up, is marketed by Runco Corp., St. Louis, Mo., as a fast-acting cold parts cleaner for removing carbon, grease, oil, and baked-on grease and dirt deposits from metal parts such as carburetors, fuel pumps, hydraulic brake equipment, pistons, valves, blocks, pistons, transmissions, etc. Substrate is nonflammable and has a special top layer used to neutralize, suspend, and then flushing.

Protects Pilot Tube

To eliminate need for neck on straight pilot tube, protective developed by Henry's Flight Service, Parkville, Mo., opens automatically at 35 mph and remains open until speed falls below that value. CA approved, device weighs 1 lb., is made of heavy nickel-plated brass and is available for tubes from 1/2 in. to 1 in. to 1 in. to 1 in. to 1 in.

Permanent Line-Label

New sleeve for aircraft tubing identification, developed by Glenn L. Martin research engineers, is designed to remain attached during life of airplane. Made of cellulose acetate but rate 0.25 in. thick and 1 in. wide, extruded, cold set, plastic material has pointed in formation before surface and comes in unrolled strips. For application, sleeve is slipped over tube, overlapping edges are sealed with acetone applied with hypodermic needle, and held in a clamp until the adhesive has set (five minutes). Printed identification is not obliterated by contact with hydraulic fluid, high octane gasoline, water, or isopropyl alcohol, or by abrasion encountered in operational service. Product is made under license by Topflight Tool Co., Inc., New York, Penna.

For Battery Upkeep

Designed for smaller maintenance shops and private aircraft owners, charger made by Brown Battery and Spark Plug Co., Reading, Pa., handles single 12-v. aircraft battery at starting rate of 4 amp. Rheostat permits manual reduction of charging rate to 2 amp. for floating charge. Unit operates on 115-240 v. a.c., has full-wave selenium rectifier. Weight is 15 lb.

Offset Ratchet Screwdriver

Made by Aero Tool Co., 6520 Arden Boulevard, Los Angeles 3, Calif., screwdriver is designed to permit application of leverage and reach into areas as accessible to common drivers. Ratchet permits use in confined spaces and is strong lever makes tool suitable for driving or removing screws. Unit has two blades, for large and small screws. Overall length is 14 in. Standard device is made for drilled screws only, but is available with special drivers for Ford & Prince, Phillips, and other screws for assembly operations.



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AVIATION WEEK, October 16, 1948

23

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Loosening, rereaming, taking-off—there's when the landing gear means functioning properly. Important in this mechanism are the landing gear bolts and nuts. To make sure they are tightened to correct measurement standards, aviation men rely on the Snap-on Blue-Point Boxockets. They like the way the non-slip grip distributes the pulling action evenly around the wrench head providing "can't-slip, can't-spread" factors of safety.

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SALES & SERVICE

CAA Shifts Affect Private Flying

Shakeup has adverse effect on promotional activities after personal aviation boom fails to materialize.

Personal aviation took considerable ground at CAA in the recent reorganization.

A reappraisal of what happened on the roadside to the agencies and individuals in CAA went clearly related to the small plane flying and the fixed base operation alone.

• **RE Lloyd Gish,** assistant to the administrator for personal flying, has been reassigned from his post of direct access to the head man of CAA to a transfer location in the new office of aviation development.

• **Dr. Dean Bensch,** assistant to the administrator for research, who has focused research physiological research projects for flyers and been a voice in government acceptance of the still young aviation, has apparently been assigned from his position.

• **Armenian** to the regional administration for personal flying have been abolished and the individuals who held those jobs have been transferred or separated.

• The **Non-scheduled Flying Advisory Committee** to the administrator, will no longer report directly to the administrator but to an assistant, not yet designated when this was written.

Meanwhile behind this series of actions may be traced to several things.

The fiscal attitude of the personal aircraft manufacturers toward CAA's offer to make funds to encourage better personal aircraft design development suddenly was a contributing factor. Plot torn down of government-sponsored development activities was one obvious indication to Administrator Bensch that CAA's efforts to promote personal aviation in the way were not welcomed, at least by the manufacturers.

• **Personal Aircraft—**Drop of personal aircraft sales to approximately personal levels this year, was another indication to CAA that the personal aircraft potential in the immediate future was far less than the day possibilities at the end of World War II anticipated. It followed that assumption at CAA personnel to promote this branch of aviation can cut back to fit the revised potential.

New emphasis on coordinating civil and military aviation, and increased emphasis on larger airports for national

defense airlift and direct military needs, leave less room in the total aviation picture for the small plane type, except possible in the flight training schools. Bensch, while a small plane pilot, is far from an aviation trustee and sponsored CAA head, who should primarily to terms of big planes, big airports, big transportation programs.

• **Insider Effect—**Effect of Lloyd Gish's transfer is not perhaps in action as of yet, if so, it is a transfer of aviation development to someone to someone's needs. Aside from the need for national aviation, Gish's transfer is not in terms of the Non-scheduled Flying Advisory Committee, and he will still have access to at least to the administrator's assistant on his secretary's desk.

Reorganization of Dr. Bensch is perhaps the most serious loss to personal aviation in the reorganization. Dr. Bensch's scientific approach to CAA needs of aviation brought about a new



PORTABLE ENGINE

Lightness of the engine powerplant used in the Mustang M1A engine plane is recently certified by CAA is shown in this picture of Lewis H. Conley, executive vice-president of Conley Motors, talking to the 1946 Conley Cabin powerplant. Conley is now making modifications at Conley to convert the engine, used in powerplant for the Mustang Conley, into the Mustang powerplant for the M1A.

51,102 Mechanics

A recent Civil Aeronautics Administration tabulation shows 51,102 certified mechanics and 29,365 certified flight instructors in the country.

California leads with 1264 mechanics and 3451 flight instructors. New York comes next with 750 mechanics, Pennsylvania is third with 5915 mechanics. Texas has the second highest number of flight instructors with 2417.

Vermont and Nevada have the lowest mechanics, with 74 and 73 respectively.

Tabulation reflects conditions as of Apr. 1, 1948.

opportunity for pilots who might never have passed the old physicals. He and John Giese, another lifetime CAA personal flying trustee, whose name has not appeared in connection with the reorganization, were most effective in obtaining identification of medical requirements for private pilot licenses, and making it possible for the final physical to give the certificate.

• **Committee —**Non-scheduled Flying Committee has been an active voice for personal aviation since its creation shortly after war's end and by T. P. Wright, Bensch's predecessor. Its mechanism and control as long as it is in operation, providing basis for the private flyer, the lightplane motor and the fixed base operator, and as long as it is not dissolved, but whether it will attempt to use other of mechanics when it no longer directly has the role of the administrator in a question.

In the agency, it has been recommended that it is regional administrator member to continue the functions of aviation training and general flying activities they be absorbed in the aviation safety operations branch.

An accompanying note says: "The day-to-day maintenance of general flying is the business of all CAA employees, especially those engaged in aviation safety activities. The phase of this promotion that must be turned out at the level of the regional administrators may be assigned to the secretary to the administrator."

In summary it appears that CAA has not closed the door on personal aviation promotion. Rather it has trimmed its promotional budget in line with the relatively small potential now indicated, and in favor of more pressing aviation needs. Why is this open for active interest of personal flying by CAA if the personal still changed with its upsway is not direct, and if other CAA employees recognize the responsibility cited above.

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Utility Emphasized in Student's Design

Practical concepts geared to college aviation courses are highlighted by the winning aircraft design, submitted by Raymond R. Dumas, as the annual contest conducted by the University of Detroit among its aeronautical engineering students. Sponsor of the contest was Continental Motors Corp.

Intended to meet basic needs of general aviation, the design, the "Ardor," stresses these considerations:

- Utility as passenger and baggage capacity, cruising speed and range.
- Safety as flight characteristics, visibility, and spright for landing.
- Moderate initial cost and low operating expense.

It is for a low-cost, efficient craft using a Continental R-145 engine. With an estimated gross weight of 2600 lb., including four 175 lb. passengers, 119 lb. of baggage, and 40 gal. of fuel, a cruising speed of 150 mph and speed of over 100 m.p.h. are anticipated.

• **Simple Design**—When loading, entrance requires 4 ft. in width and 50 in. high at pilot's position. By folding and sliding action, canopy could be opened from either side or released in exit for emergency.

All landing is attached to main section at four points. Engagement is linked to fuselage as a unit.

Also desired are convertible push-pull, hydraulic brakes, and robust unsinkable landing system.

For cost considerations, the design anticipates mass production and anticipates changes for two or three years.

Wilson Resigns AOPA

Eliot R. Wilson, Jr., has resigned as assistant general manager of Aircraft Owners & Pilots Association. He has not announced his future plans and his successor has not been named.

BRIEFING FOR DEALERS & DISTRIBUTORS

AIR TOURIST MECCA—State plans to make Wisconsin an air tourist mecca by building approximately 65 to 70 small airstrips alongside highways in the Wisconsin north country are being pushed by Lt. Marland, state aeronautics director.

Recognizing that Wisconsin's second largest industry now is tourism, Marland is asking the state legislature to provide funds for the airstrip construction. Some of the airstrips will be constructed on abandoned roadways, sections of which can be easily reclaimed to provide lightplane runways.

Marland said that he contemplates radio beacons for private firms from the lakefront, indicating where the lake are being and where they aren't. Flying southern from southern Wisconsin and other nearby airports under the Chicago will be able to drop a line in the Wisconsin lakes within a few hours after leaving home. If related vehicles in the lake country will be feasible when the airstrip are provided.

LITTLE ADVANCE—A report by an NAAAO Research and Development Committee at the recent meeting of the state aviation officials concluded that "little have advance has been made in aerodynamics of civil flying in the past year, although there have been some encouraging refinements in details such as the increased landing gear sponsored by CAA, reduction of external noise in small aircraft aerodynamic by Associated Research Foundation for NAAAO and structural changes in rotorcraft in event of accident, largely brought about by the crash injury research project of Cornell Medical College."

Research committee obtained replies from 22 air carriers, 15 aircraft manufacturers, eight engine manufacturers and four popular companies on a questionnaire about external aircraft noise, what research is being done to reduce it, what actions states should take. Most air carriers reported that difficulties, expense, added weight and low efficiency resulting from automatically reducing external aircraft noise were a serious limiting factor.

State support for the approval of low noise aircraft, air navigation facilities to implement advance traffic patterns, and ordering of "co-bay" pilots with low-flying army war surplus aircraft were advocated.

GE CUT HITS W. VA.—Herbert Stark, West Virginia aeronautics director says, the shutting of the GE Eight training program in his state has caused the folding of several good local low-cost airlines. In the hills of West Virginia, he points out, it costs a considerable amount of money, possibly \$10,000 to \$40,000, to level out sufficient land and build even a small airport.

While the operations which folded were for the most part new enterprises started within the last few years, they did not fail in the eyes of government operators which the VA Washington officials like to growl about. Stark says his operators were capable men who invested and lost their own money in a search of the solitary action of the Washington and regional VA officials.

UNIT VS. FLIGHT TRAINING—A renewed clamor of veterans' affairs in Washington says the real support for the government flight against flight training for veterans comes from the leaders of the national military training program, who are working through the top VA officials. The CMT supports civilian, he says, that every GE who comes to fly because of the superiority of experience in UNIT, and that the program does it building up opposition to CMT.

UNIT supports have urged President Truman to stop the "limited" flight education program which would make America's veterans aware that there is another great way besides lost soldiering to win war. President Truman once in a while a large military man at least has been known to their side and would the word be VA.

There was reports on Washington last week that Gen. Carl Spaatz, who has obviously held the line against releasing the VA attack on flight training, was considering resigning as VA administrator.

—ALEXANDER MCKURELY

Airline Ailments Probed for Cure

SAE speaker critical of route duplications; calls for greater individual initiative on part of operators.

Separate ailments of the airlines have attracted public attention to the individual problems they create. Rarely is an ailment made to segregate cause from effect or more important, to take a penetrating view of fundamental elements to see where they fit in the concepts that make a successful and sound air transport industry.

It is all constructive intent to examine the attempts to go to the root of the industry's difficulties and spread up the field for constructive action. It is not necessary to agree with each view. It is enough to focus attention on fundamental issues as a basis of discussion leading to necessary corrective measures.

► **Contributions**—In this light, an important contribution was made by W. L. McMillan, director of economic planning for American Airlines, in his recent address before the Society of Automotive Engineers in Los Angeles. Speaking as an individual and not as an official of American Airlines, McMillan discussed "Some Economic Problems of the Air Transport Industry."

The concept of competition is given a searching analysis. McMillan holds that the public utility concept in a regulated industry provides for a combination of desirable and undesirable attributes, such as (a) the right to do certain activities under individual contracts, (b) the right to charge rates and exercise authority from day to day, (c) the right to operate when, where, and as it pleases, and (d) the right to withdraw quickly these services in local situations.

► **Paradox**—McMillan continued with the paradox that in accepting a certificate, a high price is paid, for the privileges given up are very important in ensuring profits. In return, however, freedom from excessive competition and, in some states, freedom from all competition are expected. The contention is advanced that the airlines have paid the price but have not avoided the results they should have in return for the surrender of their rights.

"An amazing amount of competition has been permitted and encouraged," the speaker further declared, "with no

price exacted. In the case of non-scheduled flight services, they were even largely given the benefits of operating to scheduled carriers without paying the price and, in the case of passenger services, they operated as scheduled carriers in direct violation of the law, and without paying the price. Consequently, the airlines and themselves in the position of operating in a competitive atmosphere almost identical to that of an unregulated industry, yet being deprived of many of the normal competitive weapons.

► **Unsound**—The route duplications created among the certificated lines when three or four carriers fly daily between points where the traffic is inadequate for only two has unquestionably resulted in an unsound condition. An excellent example is the three lines certificated to fly Chicago to Peoria to Springfield, Ill., to St. Louis. There is hardly enough business at Peoria and Springfield for one. On the portion of the route from Peoria to Chicago there are four lines thus nullifying the probability of Peoria to each of the cities involved.

Route duplication throughout the country, instead of developing traffic more rapidly as was expected in some instances, has failed to increase this despite.

► **Consequence**—The basic premise advanced by McMillan as to standard competition is valid enough, but the ultimate corrective mechanism does not readily lend themselves to immediate action.

In the first place, in the heated competition for new routes, an owner appeared before CAB with modest requests at least three times responsibility in the over-duplication of routes which the Board structured. When CAB awarded new routes, it was explained for its far-sighted vision in taking an epidemic view of the future, where it allowed certain route applications. It was evidenced by its review vision. When choosing between two carriers for certain route segments, the regulatory board heard contention in the Board's wisdom while the losing carrier was left from charitable.

► **Sacrifice**—In re-shaping the airline map, members of all carriers would be

willing to eliminate excessive route overlap. The general tendency is for each carrier to suggest that the next line give something up while its present route structure remains solid.

The chain of criticism that greeted the Board's proposed investigation of the advisability of dismantling National is only a small sample of the difficulties encountered in attempting to eliminate excess routes. Only a bold initiative of the more words, introduced by Congress, appears to have much chance of bringing order to the chaotic route structure of the airlines. And this seems apparent already.

► **Competition**—The McMillan paper also took exception to the competition afforded by non-certificated carriers in both passenger and freight categories. The paper point made here is that "the objective of the Civil Aeronautics Act is a network of airlines, not just a cross-hatching operation between a few large cities." Other ailments of the industry such as the inflated support created by constantly increasing related mail payments also are noted.

► **Tone**—There is a positive constructive tone in the conclusions and recommendations advanced in McMillan's 15 report program (Aviation Week, Oct. 11).

The important feature involves the recognition that there is much that the airlines themselves can do to improve their own lot.

In this connection, it is interesting to note that American's costs have been gradually declining in the face of a general inflationary episode. For example, American's costs per available ton mile flown by the twelve months ended July 1, 1948, were 137 cents, for twelve months ending July 1, 1945, they were 304 cents and they were just 25 cents in July, 1944. The cost savings exhibited in the face of a 50 percent rise in the price of all commodities during the same period.

► **Composite**—In the forefront of McMillan's package of 13 suggestions which are prefaced in a composite in order to be effective, are recommendations entirely within the initiative of the carriers themselves. This includes further economies by new methods in the simplification of present ones. More aggressive and imaginative selling is also suggested along with better performance and security. The airlines are called on to tighten and CAB to tighten promotional funds and rates for bookending air travel markets.

It is encouraging to see any program for improving the fortunes of the airlines which is put on such an emphasis on individual initiative in the industry rather than as the seemingly easy way out of asking for more hand-outs from the government.

—Selig Altschul

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Exide. Receives Modern Plastics Award



It's the recent Modern Plastics' annual competition. The Electric Storage Battery Company received the "National and Machinery Award" in recognition of Exide's pioneering in the use of a plastic container for jet plane batteries. This

container, especially designed by Exide engineers for use in jet planes, is just one of many Exide contributions to the design and manufacture of aviation batteries—covering all storage battery needs—such as dependability, safety, long life and economy



Wrote for a copy of Exide Battery Battery Catalog, which includes the Exide Battery price and replacement data sheet

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AVIATION WEEK, October 18, 1948

AIR TRANSPORT

CAB Insists on Flight Engineers

Based upon the previous order that third crewman be carried after Dec. 1; affects 109 DC-6s.

Acting once the strong protests of the Air Transport Association, the Civil Aeronautics Board, has withdrawn an order which will require six domestic and overseas airlines to use flight engineers as third crewmen in the cockpit of more than 100 DC-6s before the end of the year.

Weighing the prospect of added safety against the possible costs in

valued, the Board declared it is in the public interest to stick by its opinion of last spring with only a few modifications. This ruling (Aviation Week, Apr. 26) provided that after Dec. 1, on routes holding a flight engineer certificate shall be required solely as a flight engineer on all routes holding for more than 10,000 lb maximum takeoff weight, and on all other routes certified for more than 10,000 lb maximum takeoff weight where the Airline certificate finds that the design of the aircraft used as the type of operation is such as to require engine personnel.

► **Changes Made**—The new order differs from the original ruling in that it applies only to two-engine aircraft. Also eliminated was the stipulation that the third crewman be employed "solely as flight engineer." Thus the flight engineer, when required, cannot be assigned simultaneously to other duties, but which an airline's certificate is necessary. But a crewman may relieve a pilot for part of a trip and later rejoin the flight engineer provided he holds appropriate certification.

While the DC-6 is the only aircraft immediately affected by CAB's flight engineer rule, the order also applies to the Constellation and the Boeing Stratocruiser. But all Constellation carry flight engineers and are equipped with complete flight engineer stations. The Stratocruiser, which will go into service early next year, will also be equipped for the third man in the cockpit when delivered, although Northwest Airlines originally planned to use two crew on some routes. Based on reports since that the Stratocruiser is basically a two-man plane, but American Overseas Airlines, United Air Lines and Pan American Airways have already decided to use a three-man crew with the ship.

► **Resists** The Airline-CAB's latest

order declares that despite the automatic device now installed on each craft as the DC-6, Stratocruiser and Constellation, they have in many cases called for the pilot's attention and use in complex operations that the pilot's duty to accomplish all his duties may be extended if provision is not made for a flight engineer.

"The flight engineer will contribute substantially to reduction of pilot fatigue and resultant accident-producing sequences," the Board continued. In particular, the flight engineer can relieve the pilots of burdensome mechanical duties which would be exceptionally taxing if required to be performed when the plane is being flown on emergency routes where there are difficult navigational problems, when radio communications are erratic, or when the pilots are attempting to follow complex radio traffic control procedures and



WASHINGTON PREVIEW

Capt. E. V. Kelenchuk, president and chief manager of Boeing Air Lines, was host to more than 700 guests who attended a Washington preview of the motion picture "Air Force in Peace Power," which traces the development of aviation from the Wright brothers to rockets. John R. Adams (right) assistant secretary of Commerce for aeronautics, was among those greeted by Kelenchuk, who has a lesser role in the following film.

to accomplish instrument approaches. ► **Added Safety**—The flight engineer is able to perform emergency duties and add to safety of flight even when riding in the rear seat of a plane in which no flight engineer station has been provided. In addition, the flight engineer acts as a specialized emergency training drill in case of fuel or other malfunctions, both in overruling the difficulty and restoring normal functioning, and in relieving the pilots of various mechanical duties, particularly those which would require one of them to leave his pilot's station. The flight engineer also will contribute to the level of safety by assuming responsibility for proper coordination of ground maintenance for the correction of any malfunctions which have been discovered in flight.

American Airlines, which operates the most DC-6s (150), viewed the strongest opposition to the new flight engineer ruling (Aviation Week, July 20). AA asserted that that imposition of a flight engineer rule is a crowded cockpit not designed to accommodate a third man would constitute a hazard to safety.

The carrier emphasized that no DC-6 accident has been traced to the absence of a flight engineer as in an engine stall and on the pilot's station. CAB and CAA to make a further study of the problem before finalizing the flight engineer requirement. The Air Line Pilot Association has been an enthusiastic supporter of the flight engineer regulation and opposed American's request.

► **Other DC-6s**—Next to American, United's 39 plane DC-6 fleet is the largest. Other carriers using the design are Douglas, 6; Boeing, 5; and National, 4. Delta Air Lines hopes to have its five DC-6s in service by the end of the year.

► **Next Date**, United is the only DC-6 operator to announce its plans for carrying out the flight engineer ruling. Approximately 120 students who will be conducting pilot-operations are currently in training at Chicago, Ill.

► **To qualify as a UAA**, "second officer," the crewman are required to have at least 500 h of pilot time along with a commercial certificate and instrument rating, a flight engineer's certificate and an aircraft radio operator's license. The Airline Flight Engineers Association (AFL) recently presented United's use of pilots as flight engineers in domestic operations. It contends that mechanics and pilots should be trained for flight engineering duties.

► **Extension Possible**—There is some possibility that at least one carrier will not be able to train third crewmen in time to comply with CAB's Dec. 1 deadline. In this event, an extension will be required.

Expense of training and using flight

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Ryan Navion

RYAN AERONAUTICAL COMPANY, 418 Lindbergh Field, San Diego, California

engineers, cost of modifying the cockpit of the planes affected and the possible period loss have figured importantly in the airline's opposition to the fleet expansion program. Flight engineers' pay savings exceed \$180 monthly. American, United, Braniff, National, Delta and Pacific probably will require some 375 engineers for the 160 DC-4s. That's additional expenses of about \$1,600,000 monthly.

CAB officials and the Air Line Pilots Association claim that additional safety will mean less compensation for the extra expense. Only last month TWA was seeking public relations capital out of the fact that its Constellation had filed requests. Large TWA newspaper advertisements claimed that the position of "the extra man in the cockpit" was one of the biggest reasons why airline travelers should use Constellations.

CAB Issues Findings On Three Accidents

Mechanical failures were responsible for two accidents and pilot error probably caused a third accident on which reports were issued recently by the Civil Aeronautics Board.

The crashes, which resulted in only two fatalities.

► **Pilot Error.** The Air Transport Association last month planned to submit to the CAB a report on the investigation of two-engine pilots and cockpit which in winter carriers expect to be finished during the next few months. Since the Air Force's training program has sufficient output of four-engine and two-engine pilots and cockpit which in winter carriers expect to be finished during the next few months. Since the Air Force's training program has sufficient output of four-engine and two-engine pilots and cockpit which in winter carriers expect to be finished during the next few months.

The crew had been cleared for a straight-in approach to San Francisco Municipal Airport, where the ceiling was 700 ft and the visibility three miles. The plane hit the runway at the intersection of the Mainline and Main runways at an altitude of 1,500 ft. The investigation found that the crew had been cleared for a straight-in approach to San Francisco Municipal Airport, where the ceiling was 700 ft and the visibility three miles. The plane hit the runway at the intersection of the Mainline and Main runways at an altitude of 1,500 ft. The investigation found that the crew had been cleared for a straight-in approach to San Francisco Municipal Airport, where the ceiling was 700 ft and the visibility three miles.

► **Capital Airlines.** The accident which severely damaged a corporate DC-3 while on a ferry flight from Nashville, Va., to Washington, D.C., on May 6, 1957, was probably caused by fatigue failure of one of the alternating loads in the left engine during flight. The two engines, each equipped with a radial, were running at 1,500 ft. The investigation found that the crew had been cleared for a straight-in approach to San Francisco Municipal Airport, where the ceiling was 700 ft and the visibility three miles.

► **The American Airlines.** The crash involving a scheduled landing of a PAA Constellation at Allen Gold Coast, Africa, last May 24, was probably caused by failure of the engine used in landing maneuvers. Investigation found that extension of the nose wheel gear was restricted by the hydraulic landing gear, which points did not extend sufficiently to permit engagement of the tail-down device. The engine was in the landing, and the plane was not damaged externally.

Airlines to Lend Pilots to Airlift

With MATS strained to limit, Air Force looks increasingly to carriers for manpower and equipment.

The scarcity of strength provided by U. S. commercial airlines during major emergencies is being an increasing importance as the Indian airlift continues to tip the manpower and equipment of the Military Air Transport Service.

Completion of the first 300 days of "Operation Varsity" only this month found MATS less dependent on the airlines for specific trans-Atlantic flights which have furnished badly needed logistical support. But at the same time, the Air Force was looking over the commercial carriers' ability to provide pilots—and possibly equipment—for the Indian airlift itself this winter.

► **Pilot Study.** The Air Transport Association last month planned to submit to the Air Force a report on the investigation of two-engine pilots and cockpit which in winter carriers expect to be finished during the next few months. Since the Air Force's training program has sufficient output of four-engine and two-engine pilots and cockpit which in winter carriers expect to be finished during the next few months.

► **Flight Flights.** During the first 300 days of the Indian airlift, between 175 and 200 flight flights were made from Westover Field, Mass., to Frankfurt by the commercial airlines. These flights of the "MATS military" were made by three individual carriers—Pan American, American Overseas Airline, Air Lines and TWA—and three national operators—Scandinavian Airlines.

USAF will check ATAA's list to determine whether the pilots have Air Force or National Guard commitments and whether they have other efficiency ratings which would be a hindrance. After that study is completed, the total number of flights will be checked against the number the Air Force wants to send.

► **Training Program.** Currently, the Air Force is in the market for ground 250 pilots and co-pilots. In addition, it is looking for a number of flight engineers. Available volunteers by Operation Varsity date will be trained in teams in the new replacement training unit now being conducted by MATS at Great Falls, Mont. (Aviation Week, Oct. 17).

Meanwhile USAF may use the airlines for between 15 and 40 DC-4s to bolster the overworked MATS fleet. The carrier that has been offered to use aircraft to the Air Force.

► **Needed.** Days-Up-to-date information on the latest scheduled carrier who is being made available to MATS. Following a conference with MATS officials, the newly organized Indian airlift. Air Corps' Association requests all large regular operators to provide data on their personnel, facilities, ground crew of operation and number and types of equipment. A plan for mobilization of the commercial airlines during emergency already has been submitted to MATS by the Air Transport Association.

MATS' declining need for special commercial contract flights to transport war parts, engine replacement and other material from the U. S. to Germany is accounted for in part by the trans-Atlantic shuffling of Operation Varsity G-4s which send 2,000-ft. aircraft to the Indian airlift. These aircraft have a large capacity both on the forward top prior to overhaul and on the forward top prior to overhaul and on the forward top prior to overhaul.

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Alaska Airlines and Transocean Air Lines (Aviation Week, Sept. 26).

While commercial flight rights for MATS have fallen off, Pan American and ADAC are still set for moving some 4,000 military dependents and civilian personnel back from Frankfurt in New York. The two airlines also have lines resupplying about 1,000 Air Force personnel to Germany. A continual shortage of passenger vessels in the North Atlantic is responsible for the Air movement.

On the Frankfurt-Berlin run itself, American Overseas Airline flew 4,570,000 lb of cargo and mail and 10,640 passengers during the first 300 days of the German airlift's ground blockade. Only U. S. commercial airlines could have flown that much, according to Berlin, ADA carried 2,800,000 lb of cargo and 19,000 passengers out and out of the city during September alone.

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RENO BOOSTS THE AIRLINES



Flightline the most extensive outdoor show program to promote travel or travel the Reno, Nev., Chamber of Commerce. Some 70 highway signs on full color are being posted in the first week of the Reno, Nev., Chamber of Commerce. Some 70 highway signs on full color are being posted in the first week of the Reno, Nev., Chamber of Commerce. Some 70 highway signs on full color are being posted in the first week of the Reno, Nev., Chamber of Commerce.

in the San Francisco, Los Angeles, Sacramento and Las Vegas areas. The signs show the Reno, Nev., Chamber of Commerce. Some 70 highway signs on full color are being posted in the first week of the Reno, Nev., Chamber of Commerce. Some 70 highway signs on full color are being posted in the first week of the Reno, Nev., Chamber of Commerce.

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CAB Policy Protested By Airfreight Group

A reinforced Air Freight Forwarders Association is challenging the Civil Aeronautics Board's recent finding that losses incurred by the certificated airlines in cargo operations "must be compensated by said pay to the extent that passenger operations must be undertaken."

The Board's policy, which is also causing concern in the Post Office Department, was set down for the first time in the recent Board's Airway and Delta Air Lines mail rate opinion (Aviation Week, Sept. 27). At the same time, CAB made clear that deficits sustained through establishment of uncompetitive freight rates, in through operation of capacity in excess of reasonable requirements, will not be used for mail rate purposes.

For at Pan American-AFFA told CAB that in the past the certificated airlines have generally opposed restriction of airfreight forwarders and have adopted tariffs designed to make it impossible for forwarders to operate. "The record in the airfreight rate case illustrates the mobility and suppleness of the certificated carriers to support sound freight rate making by altering the volume breaks necessary to mail cargo tariffs and to the success of the airfreight forwarder experiment," AFFA declared.

"This reluctance to accept the necessity of cargo rate making has not been true of the noncertificated cargo carriers. But in the event that freight losses are to be underwritten by mail, any cargo operations by carriers other than those handling mail may prove to be economically impossible."

"The certificated carriers have created Air Cargo, Inc., for the express purpose of attempting to illustrate the impossibility of financially sustained by forwarders. Thus subsidizing cargo losses represents in a sense the substitution of the certificated carrier over freight forwarders, placing that knowledge in the strongest competitive position."

► **Important.** Proposals—AFFA, and continuation of such a practice will nullify the validity of the airfreight for forwarder experiment. CAB last month issued an exemption permitting the forwarders to function for a period not to exceed five years (Aviation Week, Sept. 20). The Board's unilateral letters of exemption for 55 of the industry carriers.

Present data supplied by the certificated airlines to CAB are inadequate to determine whether their cargo rates and services are proper, according to AFFA. It added that there is doubt whether the scheduled airlines' ground-

other operations give them authority to handle freight.

El Salvador Government Speaks for TACA

The government of El Salvador has made strong representations to the U. S. State Department, stating that recognition of rights be granted TACA, S. A., to continue to operate between the U. S. and Central America.

TACA is now flying from San Salvador to New Orleans, but a CAB air carrier last summer urged the Board not to renew the franchise because Waterman Steamship Corp. has ac-

quand control of the air carrier (Aviation Week, July 5). Pan American Airways is fighting renewal of TACA's franchise in carrier permit, charging that Waterman is attempting to get by subterfuge routes it could not obtain from CAB by direct application.

The Salvadorian government insists that TACA, S. A., is not merely a Salvadorian airline even though its parent company is a Panamanian firm controlled by Waterman. El Salvador now authorizes Pan American Airways to land in the country, and the government told that if CAB refuses to extend TACA's permit PAA will have an immediate monopoly as an service to the U. S.

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CAB To Foot Bill For Florida Airways

While the Civil Aeronautics Board shows every intention of turning out the sixth instance imposed on Florida Airways last month, the Institute's stockholders have been assured they will not have to shoulder losses incurred by the experimental operation of the airline.

A tentative decision recently issued by CAB would give Florida \$49,560, in total pay (equal to \$3.35 cents a plane mile) for the period between Jan. 18, 1947, when operations started and May 16, 1948. This sum—\$148,000 over the amount received by Florida under its temporary road rate—would yield the carrier a 7 1/2 percent profit on its increased investment during the 17-month period.

Further Payments—In addition, Florida is to receive a 79.15 cent a mile mail pay—equal to \$328,000—between June 1, 1948, and May 31, 1949, when its certificate is due to expire. The 79.15 cent a plane mile payment is the highest figure ever set for a feeder and should yield the company about a 5 percent profit on its assigned investment.

CAB complained that although Florida had increased its revenues to a limited extent during its first 17 months of service, "the fact remains there has been no appreciable decrease in its dependence on the government." Yet, the Board estimated, the decision was to continue the Institute's life beyond May 31, 1948 was not to affect and thereby duty to fly for mail into for the duration of the certificate.

Low Revenues—During its first 17 months of service, Florida had sold mail revenues of only \$94,093, CAB declared. Its operating expenses totaled \$379,612, leaving a net operating loss before mail pay of \$285,519.

Meanwhile, backed by new Institute, Florida Airways has asked CAB for a consideration of the decision during the certificate extension. The carrier and the ruling that the experiment "appear to be well timed" and beyond the scope of the case, since Florida was never advised that it continued customer was at stake.

Portland Expands Airport

Port of Portland Commission has authorized a \$2,000,000 bond issue to provide funds for expanding the Portland, Ore., airport by constructing an 1500-ft. runway. Total cost of the project's first phase is estimated at \$2,582,578, of which \$8,328,430 will be funded out. Work is to be completed within a year.



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Look for testing and carrying capacity options at extra cost.



Coast-to-Coast by Sky-Coach

(Continued from page 96)

note excerpt by adults from school children and four adults were given the baggage the following parents were involved:

- 13 passengers were businessmen traveling with their families
- 4 were students traveling at personal expense
- 2 were business men traveling to make connections
- 2 were nurses traveling for personal reasons
- 2 were actors being flown to a "top" in Honolulu
- 2 were business men flying from a New York station
- 2 were typists seeking employment in California
- 2 were domestic servants returning home via vacation
- 2 were European tourists visiting American friends

The balance of the list included one each of the following:

Telephone operator, social worker, two veterinarians, musician, truck driver, lawyer, data designer, jazz singer, reporter, student, secretary.

This, then, is the market for three-power air service. But what about the methods which have raised revenues while reducing cost? Is economy achieved at the risk of passenger loss?

► **First Experience** Finally, I doubt the letter. An American lands at night and flies from California Eastern and The Flying Tigers. No one can challenge the safety record of Douglas DC-4 equipment and both of these unexcelled operators have built excellent air and ground records. On two occasions, the Air Transport Magazine maintenance crew at Washington airport has gone to California Eastern.

Is it so for individual flight crews as mentioned. Air America is gradually losing air crew talent currently comparing its "top men" division. Four captains—Ed Korte, Al Lee, Ray Moore and Jim Stinson—have left the United States. Two others—Bill Stevens and George Radtke—have left. Tom Wolf and Ray Armstrong, accordingly. The letter has also been with Russell and Mid-Columbia. Only Jim Stephens, who was a command pilot with the MATS, is being in scheduled airline operation.

Sundair, an American capital city plane of experience into the DC-4 workload. Don Fife flew with American and Ken Kirk with United. Howard Kirk, long-time in Northwest cockpit and Western Defense ground had similar experience with Alaska Airlines. Elmer Corcoran, too, flew for Western and TWA. Williams was a Jim Hat headliner again with the Air Transport Command. The letter, incidentally, typifies Air America's flight in 24 years old, but 1200 hours of flight time and 275,000 hours in flight. Add to this the history of experience at Air America, but this cockpit instructor at Boulder, Iowa, and in two other Air Force schools and you have a very hard-sold man at the controls.

There are men on flying on short-term contracts for two reasons. That the thing too well to set up a scheduled airline service has been done more by men capable than by flying companies. And they want to make money. An Air America captain earns a full \$12 per hour, with a monthly guarantee of \$500. Logging a full 81 hours monthly, then earnings usually top \$1800 even before pay. Despite the fact \$500 monthly is tight, approximately added to \$400 after an month. In addition, flight crew and other personnel receive salaries at the rate of \$10 hourly—from the time they leave home until they return.

Crews come and go with each Air America. May's flight crew, for example, was \$200 monthly. She was trained in United, San Diego, who landed her at Denver? At Kansas City, near \$215 monthly. He usually worked on Flying Tiger service between Los Angeles and Tulsa.

► **Other Cost Cuts** With little effort to minimize risk, it should be obvious that Air America runs its service on ground personnel and on aircraft into and above the airline's basic transportation function. Here are a few examples of economy:

- Air America loses its place by the flight, eliminating equipment dependent on ground plans which produce no revenue
- Air America adjusts its sales program to avoid losses in each route area. These losses maintain ticket offers, versus all advertising, pay all ticketing personnel, support all agents without contractual commitments of any kind.
- Air America buys all ground services by the flight. At Kansas City, for example, the payment for plane cleaning is \$4. The landing fee at Fort Worth is \$25 per flight.
- Air America buys used engine parts to "bush" saved on three-year paper plates. A typical bush includes a bush, insert, oil, engine time and other.
- Air America uses special by all possible communications between Los Angeles and New York, ensuring telephone service, which is used by the line, for urgent messages.
- Air America organizes the travel or schedules to dispatching and necessary business as usual.

When these economies are coupled by use in mass flight daily in each direction, they ensure substantial profitability to the airline. Moreover, schedules at present—of shift of long-term ground facilities, maintenance, air, to some day coach returns to New York—plus a maximum passenger loading of 15 (except on one aircraft) against the history of Air America's profit with this type of service.

Also, the statistics are more than likely to be true than are their counterparts in ATN. They use money and time that way. If Air America has only one or two Cleveland passengers, that doesn't mean they're flying to Cleveland without such selling programs to exchange their tickets for appropriate Cleveland flights. So, we believe in actual cost for a single passenger. Commercially, that is in one day. Philadelphia passengers in southern Washington landed at night.

Incidentally, Air America's operation begins only in July, but shows a profit since its third week. Last month's overhead average 14 percent, a low discount rate against which we assessed, partially by indirect comparison. Workload loads are light—about 85 percent on weekdays, 85 percent on Saturdays.

► **Summary** That, briefly, is sky coach air travel. It isn't the last word in air travel.

So far, the unscheduled operators have been able to do everything from mid-air to late departure in "unscheduled" form. But before we can make and change from an scheduled airline will quickly turn the most skilled passengers into an emergency. Making operations, already appeared in some hard traffic, is quickly needed during non-emergency months and will eventually come when the pressure of hard-coreline atmosphere runs its course (they never understand).

Conversely, the scheduled airlines cannot ignore the demand service, whether it is not scheduled can be scheduled in sub-scheduled form. The ends are studied against the non-scheduled operators—they are making money. They receive no real market as unscheduled public credit from the same. They are not allowed the use of public utility services at LaGuardia Field, but their customers pay from their point in New York City's customers. They can't meet their customer over at LaGuardia, as even some \$300 million loss per hour. But a serious economic force. Authority kind better could have this scheduled airline. They can't sell "Travelers" type policies to passengers, although they provide \$50,000 coverage per seat on a lifetime basis. But one consistent company must have the said ATN policy.

Yes, Traveler is a low point in air support service. It is not at the top of the scale. Something less than a two-headed eagle and something more than a private jet, the air coach is getting and more than a low cost airline. Personally, I can live a decent middle and a low-level private airline at the Stock Club—on the \$1.17 difference in scheduled airline character. Not that I don't like the cheapness. But I often think too.

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PHANTOMS SCORE IN MAJOR SEA TEST

Again, Westinghouse Yankee Turbojets Prove Their Dependability

To prove the operability of jet aircraft with the fleet under tactical conditions, the Navy put sixteen McDonnell Phantom through their paces off the carrier USS Saipan. Sixteen Phantoms catapulted off the carrier deck, dive-attacked targets, maneuvered in formation, and landed on a rolling, pitching deck. Sixteen Phantoms did everything that could be asked of carrier fighters . . . and did it flawlessly.

One reason for the success of the test was the flawless performance of the Yankee

(J-30WE) Turbojets—power plants of the Phantoms. Engine starts were unfailing. Performance was excellent—with no engine trouble throughout the four-day test. What's more, the ship's crew liked the jets—liked their much lower noise level . . . the accessibility of the engines—the convenience of handling.

Thus, in the first full-scale, tactical jet operation, the Navy gave an enthusiastic "Thumbs Up". Again, the Yankee Turbojet engines have proved their practicability in operation with the fleet. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

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